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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/764,946

01/26/2004

Adam Michael Espeseth

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06/09/2006

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EXAMINER

DOAN, DUC T

ART UNIT

PAPER NUMBER

2188

DATE MAILED: 06/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/764,946

Applicant(s)

ESPESETH ET AL.

Examiner

Duc T. Doan

Art Unit

2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-10, 12-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-10 and 12-18 is/are allowed.
- 6) ☒ Claim(s) 1, 4, 5 and 14 is/are rejected.
- 7) ☒ Claim(s) 3 and 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Status of Claims

Claims 1-18 have been presented for examination in this application. In response to the last Office Action, The specification has been amended. Claims 2,11 were canceled, claims 1,7,10 have been amended. As a result, claims 1,3-10,12-18 are now pending in this application.

Claims 1,4,5,14 are rejected.

Claims 3,6 are objected to.

Claims 7-10,12-18 contain allowable subject matter.

Applicant's arguments filed 6/1/06 have been fully considered but they are not persuasive. Therefore the rejections from previous office action are respectfully maintained, with changes as needed to address the amendments as follows:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,4-5,14 rejected under 35 U.S.C. 103(a) as being unpatentable over Clegg et al (US 6721845).

As in claim 1, Clegg describes a hard disk drive (HDD) comprising: at least one rotatable disk (disk); at least one data transfer element (read/write head); and at least one HDD controller controlling the data transfer element to execute commands in a queue (Fig 1A), at least one command being selected for execution based on at least one of: an optimized throughput benefit (Clegg's column 2 lines 25-30, advantageously write sequentially, lines 45-55 read sequentially), and an optimized operation rate benefit (Clegg's column 2 line 67 to column 3 line 4, random reads); wherein the throughput benefit is determined based at least in part on a pipe length. Clegg's column 2 lines 25-30 clearly describe the advantage of writing sequential data records so that they fill the current cylinder before moving to the next cylinder.

As in claim 4, the claim recites wherein a pipe length is a length of the sequential pipe of commands in at least one of: servo identifications (SIDs), and number of blocks in a pipe. Clegg's column 4 lines 55-67 describes a mechanism of checking the size of the next request and determine if the request is sequentially follow the last based on a range of sectors; column 5 lines 9-25 further describes using the size of data blocks of recent reads in the calculation.

As in claim 5, the claim recites wherein the operation rate benefit is determined based at least in part on a number of commands in a pipe. Claim 5 rejected based on the same rationale as in the rejection of claim 1. Clegg's column 4 line 55 to column 5 line 23 further describes using a count of commands being received from host to determine the commands being operated in sequential mode or not.

Claim 14 rejected based on the same rationale as in the rejection of claim 4.

Allowable Subject Matter

Claims 3,6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 7-10,12-13,15-18 contain allowable subject matter.

Response to Arguments

Applicant's arguments in response to the last office action has been fully considered but they are not persuasive. Examiner respectfully traverses Applicant's arguments for the following reasons:

Applicant argues that Cleggy does not teach the claim limitation of “.. wherein the throughput benefit is determined based at least in part of a pipe length”.

Specification's pages 6-7 describes the throughput benefit, amount of data transfer per second (megabytes per second), is achieved by realizing the sequential data requests can be accessed all together with a data transfer size (i.e pipe length) as the total number of data blocks in these sequential commands. By accessing these sequential data blocks all together, the throughput will be benefited since the sequential data blocks on the disk will likely be in the same cylinder, therefore the seek time for these data blocks are greatly reduced or eliminated. In another words, the benefit of the throughput is determined based on accessing theses sequential data blocks all together since total length of these sequential blocks are being accessed without the overhead of the seek time.

Specification's page 7 clearly defines pipe-length merely as a total number of data blocks for sequential commands.

Cleggy's column 2 line 55 to column 3 in a similar manner, teaches a method to improve the throughput by determining the requests are for sequential data blocks thus it's advantageously to access them all together without the overhead of the seek time (Cleggy's column 2 lines 27-30; 34-37 accessing sequential reads all together to minimize seek time). In another words, Cleggy teaches that by determining to access these data blocks all together, the throughput benefit is provided. The length of the data blocks corresponding the pipe length in the claim. Similarly, Cleggy's column 4 lines 53-65 further describes circuits to check address and size (data blocks) of each requests and determining that they are sequential requests to be send to disk together.

Conclusion

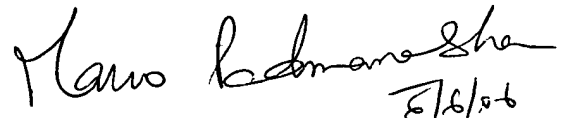
When responding to the office action, Applicant is advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist examiner to locate the appropriate paragraphs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc T. Doan whose telephone number is 571-272-4171. The examiner can normally be reached on M-F 8:00 AM 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on 571-272-4210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DD


7/6/06

Mano Padmanabhan

Supervisory Patent Examiner

TC2100

**MANO PADMANABHAN
SUPERVISORY PATENT EXAMINER**